

A10  
Concld

transducer ensures that only the difference (or sum) frequency (and phase) component will be radiated from the array.

Replace the paragraph at Col. 9, lines 40-46, with the following:

A11

Together with array 100, control signal generators 30,40 comprise the beamforming process of system 10. The frequency and phase of the row and column array control signals determine the focus and angle of the transmit and receive beams in accordance with the equations herein. Having generally introduced transmit and receive operations, broadband applications are now discussed.

A12

In the Patented Claims:

2 (amended). The apparatus of claim 1, wherein said coded signal is a chirp.

Claim 12, line 1, after "comprising:" begin a new paragraph.

A13

13 (amended). The apparatus of claim 12, wherein said array has a plurality of rows and a plurality of columns each having one of said plurality of control channels associated therewith;

said control signal generating means further including means for generating row and column control signal components; and

wherein each transducer element is uniquely and simultaneously controlled by a combination of the row and column control signal components for that transducer element.

23 (amended). An acoustic imaging apparatus, comprising:  
control logic;

A14

a plurality of transducer elements arranged in an array, each coupled to said control logic and capable of transmitting an acoustic signal representative of an electrical transmit control signal propagated from said control logic and generating an electrical receive signal representative of an incident acoustic signal;

means within said control logic for generating an electrical transmit control signal for each transducer element that contains a

[cause]

frequency based coded signal and causing each transducer to emit an acoustic signal representative of said coded signal;

A14  
Conced means for modifying the frequency and <sup>[chase]</sup>phase of an electrical receive signal of each transducer element for coherently combining reflected coded signals within the electrical receive signals thereof;

means coupled to said modifying means for decoding the combined reflected coded signals to achieve a time delay base on that coded signal; and

means coupled to said decoding means for generating image data from an output signal therefrom.

---

In the Reissue Claims:

A15  
26 (amended). The apparatus of claim 24, wherein said control circuit includes a control channel for each of said M rows and a control channel for each of said N columns, and wherein the number of control channels is fewer than the number of transducer elements.

A16  
33 (amended). The apparatus of claim 30, wherein said filter includes a matched filter.

Sub  
B3  
A17  
~~36 (amended). The apparatus of claim 30, wherein the transducer elements and the control circuit are configured such that the row and column control signals for each transducer element contain an appropriate frequency and phase shift that, when combined with the electric signal corresponding to an incident acoustic signal at that transducer element, modifies the received electric signal in such a manner as to permit the coherent combination of the modified received electric signals from all of said plurality of transducer elements.~~

37 (amended). The apparatus of claim 30, wherein said control circuit includes a control channel for each of said M rows and a control channel for each of said N columns, and wherein the number of control channels is fewer than the number of transducer elements.

---